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THE STORY OF PIERSON OF THE 95TH.

VERY close upon one hundred years ago, Francis Pierson, a Major of the old Ninety-fifth Regiment—now the Rifle Brigade—saved with his life's blood the island of Jersey from falling into the hands of its former masters the French. Though the story of this heroic deed lives in history, yet, strange to say, few of us beyond those who reside in or study the records of that little land, know much about it; we venture, therefore, to re-tell the tale, as we have gathered its particulars from the pages of well-known local writers.

In the year 1780, England was at war with France—no unusual state of things between the two countries long before and long after that period. How often, during this chronic hostile condition, our Gallic adversaries had tried to have and to hold the Channel Islands, as coigns of vantage from which to threaten our shores, it is unnecessary to dwell upon; but it may as well be mentioned, as a sort of prelude to our narrative, that in May 1779 the Prince of Nassau, with an army of five or six thousand men, had again attempted a descent on Jersey, and been driven off. Disappointed with the failure of this expedition, France soon organised another against the much-coveted islet, this time under the Baron de Rullecourt, and with a smaller and more easily handled force. On the morning after Christmas Day 1780, two thousand French troops embarked at Granville in Brittany, intending leisurely to cross the few miles of sea between that port and Jersey, land under cover of the night, and take the place by a *coup de main*. The Baron, according to the quaint writers, hoped to find the inhabitants under the lethargic influence of the good fare in meats and drinks common to the season—heavy, in fact, with *rosbif* and *portare biere*, and so less capable of resisting his attack.

The transports duly weighed anchor and started for their destination; but in those ante-steam days, starting from a port was one thing, but arriving at the journey's end was another. A

couple of hours or so after leaving Granville, a heavy storm arose; many of the small ships were driven hither and thither; and those that did manage to keep together, were forced to seek shelter, such as it was, under the lee of the rocky Chausey Isles, but eight or nine miles away from where they had just sailed. There they remained, in no safe anchorage, until the 5th January 1781, the commander of the expedition fretting and fuming, and venting his spleen in acts of the most ferocious barbarity.

On the day just mentioned, Rullecourt again made for Jersey, his force, however, diminished by no less than eight hundred men, who were aboard the dispersed vessels, none of which had turned up. He had with him a pilot, a native of Jersey, who for some criminal act had fled the country and taken refuge in France; and who, for a consideration, had agreed to guide the fleet to a secure landing-place on the east of the—to him—well-known island. Without the aid of a skilful pilot, no near approach to the shore could possibly be effected; for as some of us may be aware, a far extending chain of reefs and rocks encircles the coast; and between these, the tides and currents race with maelstrom-like velocity. True to his traitorous bond, the pilot brought the ships in sight of the bay he had selected for the debarkation; but a 'set' of the strong currents just mentioned drove them away to a flat reef of rocks on the south-east corner of the island, called Le Banc de Violet, where, unsuitable as it was for a landing, the impatient Rullecourt ordered such to be carried out. Some of the boats got to shore; others were grounded or wrecked; while others were drifted out to sea; so that at about midnight there stood on the strand only seven hundred of the twelve hundred soldiers that had left Chausey that same day.

With this crippled force, the French commander crept slowly and cautiously towards St Helier, distant but four miles, and before daybreak entered its streets and marched upon the market-place—nowadays the Royal Square. No hinderance had opposed him *en route*; one old man named Pierre

Arrivé, who was found standing in his doorway, was slain; a few others, out betimes that winter's morning, were sorely wounded, to prevent them giving the alarm; an 'obstructionist' in the shape of a sentry was put out of the way with a bayonet; a weak guard was quietly surprised and overpowered; and so it came to pass that without the discharge of a single firearm, without noise or hubbub, the Baron found himself occupying and master of a tenable position in the centre of the town. Then, to use military phraseology, he 'stood at ease,' awaiting the dawn, which, when it came, shewed to the inhabitants of the good city that their usual chaffering and gossip-loving locality was filled with French soldiery, instead of its ordinary buyers and sellers and talkers.

Giving but small heed to their consternation, Rullecourt proceeded to get the Lieutenant-governor of the island into his power, and to make him his tool. This officer, we are told, was one Major Moses Corbet; clearly a weak sort of man, wanting in British pluck, and easily cajoled. He was in bed and asleep when the French surrounded his house and made him their prisoner; and having apparently no other alternative, he yielded himself into their hands.

The English Commandant, together with the Attorney-general and Mayor, having also been captured, and safely placed under lock and key in the town-hall, the French general began to develop his mode of procedure. All is fair, says the adage, in love and war; and Rullecourt must have considered unblushing mendacity to have been comprised in the category. He told Corbet that any show of resistance would be worse than useless; that he had made a descent on St Roque and other places; that he had four thousand picked troops in the island; that the English regiments in garrison had already given in (fancy the Ross-shire Buffs, the Eighty-third, and the old fighting Ninety-fifth, the corps alluded to, laying down their arms without a shot!); and that close under the Governor's nose were two strong battalions, ready to carry everything before them. Then he drew from his pocket articles of capitulation for Major Corbet to sign, saying that, in default of compliance, he had instructions to burn the town and shipping; to put the inhabitants one and all to the sword; and moreover, that the space of thirty short minutes was all the time he should allow ere these conditions would be carried into effect. Completely hoodwinked, and, as he assigned as his excuse, to prevent the destruction of the town and the flow of human blood, Corbet and his Brigade-major affixed their names to the paper, and instructed the troops under their command to bow down, so to speak, to their conquerors.

And now, M'sieu le Baron chuckled to think how so much easier than he had dreamed of, Jersey was the property of Louis XVI., and he its General and Governor. He issued a proclamation to that

effect, desiring that all the shops should be opened and everything gone on with as usual. We may picture him standing at an open window of the Court-house and addressing the scared populace thus: 'Gentlemen—my friends,' says he, 'by my skill and the fortune of war, I am your chief, but under a new *régime, ma foi!* Carry on your affairs as if nothing had occurred out of the common; entertain me and mine hospitably; wine and tobacco my soldiers must be amply supplied with. Obey my commands implicitly, and I will not make your burden too hard to bear. But one act of mutiny, one word of discussion or denial, and there are my children with their firelocks and swords, ready and willing to enforce obedience.' And then, as is really told of him, he invited Corbet and the heads of departments to dine with him that evening!

Meantime, the insular militia—to whom, as well as to the troops of the line, information of the state of things had been sent, and who, far from obeying Major Corbet's order to surrender, were burning to drive the enemy out of their land—were mustering in all directions. Some joined the Seventy-eighth Highlanders, encamped on a height to the westward of the town, and others reinforced the little garrison stationed in Elizabeth Castle. This fortress, as perhaps may be known, is built on a rocky promontory close to St Helier, and at low-water may be reached on foot over a reef called 'The Bridge.' To get possession of this stronghold, and if necessary to turn its guns upon the town, was now Rullecourt's strategy; and so at the head of his troops, and holding Major Corbet, whom he made to accompany him, by the arm, he set forth to traverse the said 'Bridge' to the castle's gate. But bang! whiz, whiz! a couple of cannon-shots from the batteries, one of which wounded an officer and several men, stayed his progress, and shewed him as plainly as gunpowder and iron could, that here at least he should not unresistingly get possession. He sounded a halt, and sent an officer with a copy of the capitulation, and with a written order besides from his prisoner, to the Commandant of the castle, Captain Mulcaster, to give it up; but a distinct refusal, couched in the following words, was the reply: 'Our castle's strength will laugh a siege to scorn; if you dispute it, come on and try.' But Rullecourt, much too wise to run his head against stone walls bristling with ordnance, turned tail, and re-entered the town, vowing vengeance against it.

It was at this turn of the tide in the Baron's proceedings that Major Francis Pierson, a young officer of the Ninety-fifth Regiment, the next senior in rank to Corbet, and the hero of our story, arrived on the scene. He had taken command of the regulars and militia, and was moving them towards the town; he had refused to lend himself to the terms of the capitulation; he had questioned the military authority of the Governor while a prisoner to issue orders; and he had scorned conditions sent him by Rullecourt to march with his battalions

to the Court-house, there to lay down their arms, and save the city from inevitable plunder, and slaughter and fire. 'Tell your General,' said he to the bearer of the message, 'that we will carry our arms to the Court-house, as he wants us; but—it will be with bayonets fixed on our muskets, and in the hands of men sworn to use them.' Moreover, he had infused so much confidence and determination into his troops, that he is said to have experienced some difficulty in restraining their impetuosity until certain strategic disposals of his were complete. Then he advanced in two columns on the enemy, ignorant of their strength, which, as we have seen, was greatly exaggerated, and unaware also but that they held Elizabeth Castle, which piece of false information Rullecourt had conveyed to him. He was pinning his faith on the pluck and prowess of the British soldier, and on the loyalty and spirit of his comrades the local militia. Into the market-place the troops pressed, one column on the right, the other, led by Pierson, on the left, and a furious action began, the right column engaging first. The small square was crammed with combatants: it echoed to volleys of musketry; it resounded with the cries of the wounded; it was strewn with the dead. In the midst of this dreadful scene, Corbet, accompanied by a French officer, suddenly appeared, anxious, it is supposed, to stop hostilities, and to induce our men to accede to the capitulation; but a shower of bullets greeted his coming, and he was forced to make a precipitous retreat.

But scarcely had the gallant Pierson brought his small division into action, entering the market-place from a narrow street just opposite to where the Royal Court now stands, when the French levelled and discharged their muskets in that direction, and the brave young commander fell dead in the arms of his men. Discouraged at his death, his troops for an instant wavered and gave way. Rullecourt again thought that his star was in the ascendant, and fought desperately; but it was of no avail; the British officers soon rallied their soldiers; they charged with redoubled vigour, and drove the enemy on all sides before them. Just at this crisis, the French General seeing that all was lost, once again brought the unfortunate Major Corbet upon the arena of the fight—some writers assert, with the view of procuring his destruction, others, to stop the wholesale slaughter. Be this as it may, no sooner were the two officials discovered arm-in-arm, than firelocks were aimed against them both, for the indignation of the people against their pusillanimous Governor was unbounded. Corbet a second time escaped unhurt; but Rullecourt fell mortally wounded—tradition says, by Pierson's own servant—and died that night. The Governor now resumed office, secured his prisoners, and restored order in the disturbed city; but shortly after the news reached England, he was superseded, tried by court-martial, and placed on half-pay.

In the National Gallery of London may be seen a picture by Sir David Copley, R.A., representing the battle of Jersey, as the engagement is called, with Pierson's death; and in the hall of the Royal Court of the island there is an excellent copy of this painting, by a native artist. The parish church of St Helier has a plain slab and an unostentatious monument to the memory of this

young hero; and just as you pass into the Royal Square there is inscribed on a wall in large letters: 'Here PIERSON fell, January 1781.' Rullecourt's remains were buried with military honours in the cemetery of St Helier, and a record of his attempt and its failure graven on the stone that covered him. The stone has long since disappeared.

THE CRUISE OF THE WASP.

CHAPTER VIII.—THE TRIAL OF THE PIRATES —CONCLUSION.

THE *Wasp* was immediately despatched to Pahang—the small port in Malacca whereat it was said the child was detained—to demand her instant liberation. The little girl was found, and promptly delivered up to Lieutenant Lucan who, for this occasion, again took command of the schooner. She seemed to have been kindly treated by her captors; and so readily does childhood adapt itself to circumstances, that though she wept when questioned about her mother—who, it appeared, had died on board the proa before it arrived at Pahang—she was afraid of the sailors who came to take her away, and was unwilling to leave her new friends; while the woman to whose especial care she was confided, and the little Malay girls who for nearly eighteen months had been her playmates and companions, parted from her with grief and regret.

The trial, which took place immediately after the return of the *Wasp* to Singapore, created so much interest, that the court was thronged with spectators, and several ladies and gentlemen were accommodated with seats upon the bench. Until the opening of the court, I had never set eyes upon either of the accused Malays, who now stood in the dock, in charge of two armed *peons*; while a strong force of native police guarded the proa's crew, who were confined in a room in the rear of the court, together with Chang-lin, who was seated a short distance apart from them. As the two prisoners now stood confronting me, I thought it hardly possible that any two men could present a more marked contrast. The captain of the proa was a tall, elegantly formed young man, with handsome regular features, and a clear olive complexion. He was unusually light-coloured for a Malay, and there was nothing brutal or savage in the expression of his countenance, which was, in fact, remarkably prepossessing. He wore no beard; but a small, carefully trimmed, jet-black moustache graced his short curved upper lip. He was attired in a smart short blue jacket, and wide petticoat trousers, tightly belted round his slender waist, though the weapons usually carried stuck into the belt, had been removed. A large shawl, one end of which was thrown over the left shoulder so as to leave his right arm free, and a small gaily coloured turban, completed his attire. As he stood in the dock, proudly erect, with arms folded across his broad chest, boldly facing his accusers, it was difficult to imagine that he could be guilty of baseness or cruelty. The owner of the proa, who stood by his side, was a short corpulent man, far advanced in years, of very dark complexion, with a lowering brow, and a brutal, truculent visage. He was clothed in the same fashion as his companion, but his garments were soiled and carelessly worn. As he stood

with bent body and downcast eyes, as if he were afraid to meet the gaze of anybody in court, he looked the very personification of avarice, cruelty, and treachery.

An interpreter was sworn; and one of the pair of traitorous scoundrels who had betrayed their accomplices in crime, having been removed from the court, the other was told to look the prisoners in the face and make his statement. The rascal shuffled uneasily. It was impossible for him to meet the stern gaze of his young captain, and the judge was obliged to let him give his evidence without undergoing that ordeal. Then he told his story glibly enough. His evidence, as translated by the interpreter, was to the following effect. The proa now in port, to which he belonged, had at different times been employed as a piratical cruiser. Some eighteen months ago—he could not remember the exact date—she, in company with another proa, had boarded a ship off the north shore of New Guinea, at the hour of midnight. Though taken by surprise, the crew of the ship fought desperately, but were overpowered, stabbed to death, and thrown overboard. The captain and passengers of the ship, roused from their sleep, rushed upon deck; but were hurled back down the companion-ladder, and followed into the cabin by the captain of one of the proas—the younger prisoner in the dock. Another fierce struggle took place. The captain of the ship shot two of the Malays, and then kept the others at bay with his sword until its blade was broken, and he fell, badly wounded, across the table; when he was despatched by the younger of the two prisoners. A shudder pervaded the court when this statement was made, and all eyes were directed towards the Malay captain, who never quailed for an instant, but still kept his gaze fixed upon his accuser, who went on to state, that after the captain and passengers were overpowered and put to death, the cabin was plundered of everything of value that could be carried off. The desks and lockfasts in the state-rooms were rifled of their contents; the money and valuables they contained were secured, and the papers destroyed. In the cabin there were two female passengers—mother and daughter—whose lives were spared, and who were put on board the smaller of the two proas, to which he, the witness, belonged, together with the money and jewellery and the more valuable property.

On being asked why the females and the most valuable portion of the plunder were placed on board the smaller proa, the witness stated that the owner of the two proas, the older of the two prisoners, sailed on board the smaller vessel, which was the swifter of the two, and always took charge of the money and other valuable plunder; and it was thought that the females might be eventually ransomed; but the woman soon afterwards died, and the child was taken to Malacca.

He then went on to say that after the plunder was secured, the Malays returned to the proas, which were pulled away with their sweeps, it being almost calm. The ship was then close to the land, towards which she was drifting rapidly with the current. Some three or four days afterwards, while lying close under the high land, the Malays sighted a schooner sailing slowly alongshore to the southward. Believing the vessel to be a coasting trader, they pulled off towards her, and

then hoisted sail and gave chase; but when the foremost proa drew near to her, she opened fire, and speedily disabled her. Seeing this, and knowing that if they remained within range of the schooner's guns, their own vessel would meet the fate of her consort, they made off under full sail, and steered a course towards Malacca, where they arrived a fortnight afterwards.

The second witness told the same story, with very trivial variations; and as the two men had been kept apart since they had been arrested, it was apparent that they had told the truth, or had very carefully concocted this story beforehand.

The little girl, Louise Legrand, whose appearance in court awakened the pity and sympathy of all who beheld her, was seated between two of the ladies on the bench; and kindly questioned by the judge, who spoke French fluently. The poor child wept and trembled violently at first; but after some encouragement, she timidly replied to the questions put to her. She recollected the pirates coming on board the ship at night while she was asleep in the cabin. There was a dreadful fight; and her poor papa and the captain and the other gentlemen in the cabin were killed. She and her dear mamma were then carried away by the Malays, and put on board one of the proas, where her mamma died soon afterwards; she could not say how long afterwards, but not many days, she thought.

On being asked if she remembered the fight in which one of the proas was sunk, she replied that she did. It was after that when her poor mamma died. She knew this because her mamma tried to make a signal of distress to the people on board the war-ship, by waving her shawl; but she was thrust into the cabin by the cruel men. (This evidence on the part of the child seemed to corroborate the statement made by the boy belonging to the schooner, who declared that he saw the fluttering of a woman's dress on board the proa that escaped.) The little girl furthermore stated that she was put on shore when the proa came to the land; and that the people on shore were kind to her; but though she was afraid at first of the sailors who came to take her away, she was very glad now that she had been rescued from the Malays.

Lucan and I were then called upon to give our evidence, with the substance of which the reader is already acquainted; and when we stood down, Chang-lin was placed in the witness-box. Nothing had been discovered that positively criminated the wily Chinese merchant, who was therefore permitted to appear as a witness. He freely acknowledged that he had had frequent dealings with the prisoners in the dock, and had purchased from the elder prisoner, many months ago, the articles produced in court—which articles, by the way, namely, the bracelet, the shawls, the slippers, and the torn garments brought from the cabin of the *Marguerite*, were identified by Louise Legrand as having belonged to her mamma and herself. Chang-lin, however, positively declared that when he purchased the articles produced, he had no suspicion of the way by which they had come into the prisoner's possession. He had purchased them, as he had purchased other goods of various kinds, in the way of business from the prisoner, and from many other Malays and Chinamen.

The evidence of the child, and that of Lucan

and myself, was translated to the prisoners by the interpreter; but they kept a sullen silence, neither attempting to defend himself, nor replying to any questions that were put. Their guilt, however, was held to have been fully proved; and they were sentenced to be hanged in chains upon a rocky islet at the entrance to the adjacent Strait of Singapore. The remainder of the crew of the *proa*, who declared that they did not belong to the vessel at the period when the *Marguerite* was boarded and plundered, were discharged on condition of their leaving Singapore within twenty-four hours, and promising never again to make their appearance in the port; and the *proa* and her cargo were confiscated.

What became of the two Malay Witnesses, I cannot say. They disappeared mysteriously immediately after the trial, dreading, probably, the vengeance of their countrymen if they remained in Singapore. It was believed, however, that Whampoa—by previous arrangement, when he persuaded them to appear as witnesses—provided them with the means to make their escape.

The prisoners were executed on the fourth day after the trial, both of them maintaining a stubborn silence to the last.

Though nothing had been proved to criminate Chang-lin, he—much to the satisfaction of Whampoa—found it advisable to break up his establishment in Singapore and betake himself elsewhere.

I wish I could end my narrative with a romantic description of the delight with which the rescued child was received by her relations and friends in the Isle of Bourbon; but nothing of the kind occurred. All that the child, a pretty delicate little girl, could tell respecting her relations was, that her papa and mamma, when they sailed from Manilla, were going to visit two of her aunts, neither of whom she (the child) had ever seen—at St Denis, in the Isle of Bourbon. The child was made much of by the English families in Singapore; and there was more than one lady who would gladly have adopted the pretty little dark-eyed, dark-haired pet; but the authorities of the island deemed it their duty, in the first place, to acquaint the aunts with the rescue of their little niece from the Malay pirates, and to await their reply to this communication. It was long in coming. The first return mail from St Denis brought no response to the magistrates' letter; but the succeeding mail brought a dry, unsympathetic letter from one of the aunts, in which that lady stated that she and her sister-in-law were both widows with large families. They were, however, rejoiced to hear of the rescue of their niece, whom they had never seen, the child having been born in Manilla. She was therefore a stranger to them. Nevertheless, they conceived it to be their duty, under the circumstances, to receive her, and give her a home with their own children. If, therefore, the magistrates would provide their little niece with a passage to St Denis on board the next vessel that should sail from Singapore for that port, they would give her a kind welcome on her arrival, and would be happy to defray whatever expenses might be incurred.

This letter did not certainly promise a very kindly reception to the little orphan from her aunts. The authorities, however, could not do

otherwise than prepare to part with their interesting protégée; and the poor child, loaded with presents of every description from her friends in Singapore, was placed on board the next vessel that sailed from that port to the Isle of Bourbon, where it is to be hoped she found a kinder welcome than her aunt's letter gave her reason to anticipate.

A few weeks after the child's departure, the *Vesta*, whose three years' cruise on the station had expired some three months before, sailed for England, where she arrived after a passage of ninety days. Soon after her arrival at Deptford, Charles Lucan, whose conduct during the period he held command of the *Wasp* had gained him great credit, received his commission as a Lieutenant in Her Majesty's navy.

Since the period to which this narrative relates, many changes have occurred in Singapore, not the least important of which was the death in 1880 of the good Whampoa. A check has been put to the exploits of the Malay and Chinese pirates who formerly haunted the islands of the oriental archipelago; though even at the present day, great caution is required in order to sail amongst these islands in safety, and attacks upon unarmed vessels are by no means infrequent. Post Office Island is doubtless still in existence; but whether it is resorted to, as in former days, by vessels passing through Torres' Strait, I am unable to say.

POSTAGE-STAMP SAVINGS.

IN view of various representations that have from time to time been made with the object of obtaining a modification of the shilling limit of deposits in the Post-office Savings-banks, Mr Fawcett, the new Postmaster-general, has directed an experiment to be made in ten counties in England and Wales, Scotland, and Ireland, for the purpose of testing the merits of a scheme by which it is proposed to meet indirectly and as far as possible, this demand. The idea, which it may be stated was originated by Mr Chetwynd of the Post-office, is a novel and ingenious one; and as the ultimate extension of the measure is dependent on the success of the present experiment, which was commenced on the 13th September, it appears desirable that the scheme should receive as much publicity as possible, in order that those whom it is intended to benefit may become acquainted with its objects. Before proceeding, however, briefly to describe the interesting plan of 'Postage-stamp Savings,' it will be profitable to glance for a moment at the causes which have led to its proposal.

Considerable agitation has existed during the last few years—which is no doubt owing to the great success of the present system of Post-office Savings-banks—for an extension of the benefits derived from that system, and this chiefly in regard to both the lower and the higher limits of deposits as laid down in the Act of Parliament on the subject. The latter limit, as is generally known, is fixed at thirty pounds as the highest deposit to be made in any year; and at one hundred and fifty pounds, or including interest two hundred pounds, as the largest amount which can stand to

the credit of any one depositor; and this, it is contended, is not sufficiently high to fully meet the wants which the popular appreciation of the present system clearly shews to exist. There is certainly reason in the argument; and few will deny, we think, that it is desirable to see the higher limit raised, so as to admit of a more extended use of a system whose popularity alone has given rise to such a demand; and it is therefore satisfactory to know that a bill will in all probability be introduced into parliament next session for the purpose of amending the law in this respect.

As regards the desirability of reducing the lower limit, fixing a shilling as the lowest deposit, which, as we have stated, has been urged of late, it would no doubt be a great convenience to the poorer classes to be able to deposit in the postal banks the pennies which they desire to save; but unfortunately such a step would probably involve the Post-office in loss, and for this reason alone therefore, is considered impracticable. Mr Fawcett himself states in his recently issued Report that such a course 'would be attended with great additional cost, for which there would be no adequate return.' The demand, however, appeared to increase; and desirous of meeting it in some manner, Mr Chetwynd taxed his inventive mind for this purpose, with the successful result of evolving the scheme now under notice.

Starting with the principle that, as regards the pence, at least, every person wishing to save might be taught to become to a certain extent his own banker, Mr Chetwynd bethought himself of the part which postage-stamps might be brought to serve for so useful an end. The collection and saving of old postage-stamps, which so largely obtains, and has ever been a mania with school-boys since stamps were invented, probably led to the idea of the greater utility to be derived from the saving of *unused* postage-stamps. At all events, the conclusion arrived at was, that the poor man in whose pocket the penny burned a hole might exchange it for a postage-stamp of that value, and affix it to a form to be provided for the purpose by the Post-office; and when twelve postage-stamps had thus been collected, they might be received for deposit, as the equivalent of a shilling, at any Post-office Savings-bank. The form which Mr Chetwynd has devised for this purpose resembles in shape and size a bank cheque, and on one side is ruled into twelve blank spaces; while on the reverse side is a printed notice which in little more than a dozen lines embodies the whole scheme. It may be useful to reproduce this notice, which is as follows:

'Any person desirous of saving One Shilling, by means of penny contributions, for deposit in the Post-office Savings-bank, may do so by purchasing with every penny so saved a penny postage-stamp and affixing it to this form. When twelve such stamps have been so affixed, the form may then be taken to any Post-office Savings-bank, where it will be received by the Postmaster, and one shilling be allowed for the stamps; which shilling will be accepted either as the first deposit in a new account then to be opened, or as an ordinary deposit, if the owner of it has already opened an account. If the stamps affixed to this form are

defaced or in any way damaged, they will not be received by a Postmaster.'

Nothing could be simpler and clearer than the manner in which the plan is thus rendered intelligible to the most uneducated mind; and it is this simplicity that may be regarded as the most pleasing feature of the scheme, a simplicity that applies as much to the Post-office in working it as to the public in using it, for the measure will be encumbered with no account-work or detailed records.

One objection has certainly been raised to the scheme, on the ground that it will afford an opening for the disposal of postage-stamps which have not been honestly come by. Much weight, however, cannot be attached to this objection; for as a matter of fact, there is not much difficulty in getting rid of postage-stamps at the present time by payment of a certain percentage which the buying Postmaster has a right to claim; while on the other hand, merchants and others who are in the habit of keeping quantities of postage-stamps for use, are themselves to blame if they fail to guard them as safely as they do the 'petty-cash;' for it is more within the province of the Post-office to provide a means of saving for the poorer classes, than to become the guardian of the goods of the wealthier.

In introducing this plan of saving by means of postage-stamps, there is not the slightest idea on the part of the Post-office authorities of running counter to existing Penny Banks, the utility of which is by them thoroughly recognised and encouraged. The Postmaster-general indeed points out in his Report that 'for encouraging small savings, these institutions possess the powerful element of personal influence, which is altogether wanting in a public department; and their rapid extension promises, therefore, to meet a want, which would be much less effectively met by reducing the present shilling minimum for deposits in the Post-office Savings-bank.' The Post-office offers, too, substantial encouragement for the formation of penny banks by supplying deposit-books of a simple kind gratuitously to the managers on application; and it also furnishes account-books suitable for penny banks at a cheap rate. The appreciation of this assistance is demonstrated by the fact, that last year ninety thousand books for the use of depositors, and six hundred and fifty-one sets of penny bank account-books, were applied for and supplied. The latter books undoubtedly prove of great service to the managers and founders of penny banks, as they secure a proper system of accounts, and are furnished at little more than cost price. The number of penny banks which were authorised last year to invest their moneys in the postal banks was four hundred and seventy-three, being a larger number than in any previous year, owing probably to the great impetus given to the penny bank movement by the recent public conferences on 'Thrift,' as well as to the facilities for their formation afforded by the government.

In noticing these facilities, it is at once clear that there is not the shadow of any rivalry between the Post-office and the penny banks. The former, as already remarked, is fully alive to the benefits which the latter confer by the encouragement of thrift and providence amongst the poorer classes; and it readily recognises the important part played by the penny banks as *feeders* to the postal Savings-bank system. The fact of the matter, however,

appears to be, that the penny banks are not numerous enough, there being few, if indeed any other, which possess so complete and extensive a system as that of the 'Yorkshire Penny Bank,' described by us in No. 790 of this *Journal*; and the conclusion somewhat hastily jumped at has been, that the Post-office with its six thousand banks throughout the country, might extend its system so as to meet the want. The impracticability of such a step has already been alluded to; but the demand will, we believe, be as effectually, if indirectly met by the scheme proposed by Mr Chetwynd, which is now being tried experimentally in the counties of Cardigan, Cumberland, Kent, Leicester, Norfolk, and Somerset in England and Wales; in Aberdeen and Ayr in Scotland; and in Down and Waterford in Ireland. That that portion of the community whom it is intended to accommodate will recognise in it a genuine benefit, there can be no doubt; and we hope that the trial may speedily be attended with successful results, so that the scheme may soon be extended throughout the country, whereby those persons who can only save penny by penny may, where no local penny bank exists, be enabled to do so by means of postage-stamps.

MY MEMORANDUM-BOOK.

IN TWO PARTS.—PART II.

'I MUST take another jump over time. Miss Brierly is now in her twenty-fifth year, and George Hamilton just twenty-nine. They had kept their secret; and it wanted but a few months when all the world would know it. Their course of true love had run smooth enough as far as they were concerned themselves; for though they saw but little of each other, the thought of her future happiness comforted Clara under every vexation and annoyance. "A few more months," she would say—"a few more months, and I am free of my tyrant."

'Alas! how true it is that no one can tell what a day may bring forth. Before those few months had elapsed, Dibden had got hold of their secret. Of course he stormed and raved—the more, as he felt his power was ebbing fast. He tried persuasion, reproaches, threats—but to no purpose; George's determination was fixed, and the anger of his employer knew no bounds.

'At this juncture a circumstance occurred which completely changed the aspect of affairs. One day, immediately after an interview with Dibden, and while George was still a good deal excited by what had passed between them, a stranger came up to the counter, and asked to be favoured with change for a ten-pound note. He was a respectable-looking gentleman, well advanced in years; and as George was the only one of the clerks who happened to be in the counting-house at the time, he attended to him. In the office cash-box there were two five-pound notes and two or three half-sovereigns; and as the stranger was anxious to have the half of his money in gold, and there was not enough in the box, George opened his desk, and took therefrom five sovereigns which he had

that morning placed there, with which to pay his landlady. Putting one of the five-pound notes into his desk in the place of the sovereigns, he handed the latter, along with the other five-pound note, to the stranger, who thereupon thanked him courteously, and withdrew. The ten-pound note which he had received in return, George placed in the cash-box without bestowing upon it any particular examination, but went on with his work, still meditating over the rather sharp words he had had with Mr Dibden.

'Nothing happened of any consequence till later on in the day, when a message was received from the bank, that a ten-pound note which Mr Dibden had sent to be lodged there along with some other moneys, was a forged one. The note in question was that which George Hamilton had received from the elderly gentleman in the course of the morning, and which Mr Dibden had himself taken from the cash-box and forwarded to the bank. The message was brought by a private detective in the employment of the bank; and no sooner was Mr Dibden made aware of what had occurred, than he charged George Hamilton with having placed the note there. George admitted that he had taken two five-pound notes from the cash-box, and put in their place the ten-pound note in question; but he maintained he had given them in change for the ten-pound note to a gentleman who came in. This was his explanation, when taken before the magistrates. On the other hand, Dibden swore that he found one of the five-pound notes in George's desk. This George accounted for by saying that the person who had left the forged note asked him to let him have five pounds in gold; and that that sum not being in the cash-box, he changed one of the five-pound notes for five sovereigns of his own. As against this, however, one of the junior clerks stated that, on the morning of the occurrence, he had asked George for a loan of a sovereign, who replied: "I'd lend it with pleasure, my dear fellow, but I have not a sixpence to swear by."

'In answer to this, George said that he absolutely had at that moment five sovereigns put away in his desk to pay his landlady; and that he felt justified in saying he had not sixpence, as he considered that the money so appropriated to pay a just debt was not at his disposal.

'The magistrates asked him if he fancied the person who got the change had given the forged note innocently or fraudulently. That was of course impossible to say; but George thought innocently. Having heard all the evidence; after a careful consultation, they came to the conclusion that they must commit him for trial; but they would accept bail. Strange to say, the Dibdens went bail to the full amount—I believe myself, with the hope that he would break it, by quitting the country.

'I must tell you, however, that before any proceedings were commenced, young Dibden coarsely offered to Clara not to prosecute if she accepted

his proposal of marriage. To this she indignantly replied that she knew Mr Hamilton was innocent, and they knew it too; and that if he were not, she would not save him.

'At the time of these occurrences, I was away on the continent. My wife had been delicate; and the doctors said she must have change of air, and had fixed on Italy; which accounts for my not having seen the advertisement which appeared in the *Times*, and which I shall now read to you:

'If the Elderly Gentleman with the Blue Pocket-book, who received change for a Ten-pound Note at the Offices of Messrs Dibden, Knollys, & Dibden, Bell-yard, Doctors' Commons, on the 2d of September 18—, will communicate with Messrs Smith & Oliver, Solicitors, Brick Court, Middle Temple, he will confer a great obligation.

'I suppose I need scarcely tell you that I was the elderly gentleman with the blue pocket-book. Well, as I say, travelling about from one place to another, I did not see a paper regularly, and therefore missed this advertisement. In the meantime, the assizes drew on; and George Hamilton stood in the dock charged with felony. I have the trial in this paper before me. I shall read to you the leading evidence, which was all unfortunately against the prisoner. The charge was, that George Hamilton did feloniously attempt to pass a forged ten-pound note, knowing the same to be a forgery.

'The elder Dibden was the first witness called up. He deposed that the prisoner was his head-clerk, in whom he had always placed the greatest confidence; that a cash-box was left under his care, containing generally a limited amount of money, principally for the purpose of giving change; that larger sums were also frequently deposited there, if none of the principals of the house were in the way to lock it up in the money-safe; that on the morning in question, he himself had placed in the cash-box two five-pound notes and three pounds in gold; that in the afternoon he wanted to pay some money into the bank; and the safe being deficient of the sum he needed by five pounds, he opened the cash-box to take that amount therefrom; that instead of the five-pound notes which he had placed there, he found a ten-pound note, which when presented at the bank, was declared to be a forgery; that when he asked the prisoner to account for the note, he said he had received it from a stranger in exchange for the two five-pound notes; that on examining the prisoner's desk, he found one of the five-pound notes which he had placed in the cash-box that morning.

'Cross-examined.—No one had access to the cash-box but the prisoner, himself, and his son. Each had a key. The lock was a Chubb's patent, of the best description. He knew the five-pound notes by their being indorsed with the name "William Day."

'The next witness was William Simmonds, junior clerk to Messrs Dibden, Knollys, & Dibden. He swore that on the morning of the discovery of the forged note he had asked the

prisoner to lend him a sovereign; that the reply he received was: "I'd lend it with pleasure; but I have not a sixpence to swear by." Had been two years in the office with the prisoner; never had any quarrel with him.

'Eleanor Parker deposed—that she knew the prisoner well; he had lodged with her the last eighteen months. Paid his rent quarterly—always paid honourably, but used to be a little behind-hand. He was due her fully five pounds at the time of his apprehension. Had always paid her with good money—at least none of it was ever returned to her. Prisoner was out mostly all day; usually spent his nights reading.

'This was the principal evidence for the prosecution. For the defence, a few witnesses were brought up to testify to the excellent character the prisoner always bore. But his counsel took his stand not against any of the facts, which he allowed—but on the ground that they proved the act of the prisoner was done innocently and in ignorance.

"Just for a moment consider, gentlemen of the jury," he said. "Here is a gentleman who has for several years managed the business of a firm of attorneys, large sums daily passing through his hands. The utmost confidence has been placed in him. Do you think—gentlemen, I put it to you in the name of the common-sense which beams this moment on your faces—do you think that he would risk his position, honour, and name for a paltry ten-pound note? He foolishly—yes, I say very foolishly, and without carefully examining it, took a note from a complete stranger; and the only excuse he can give for this is, that he thought that Doctors' Commons was the last place in the world a swindler would go cadging about in—and that the stranger bore a most respectable appearance. For this act he deserves the reproof of his employer; and that is all. As to the evidence of the junior clerk, I must say that stronger could not be brought in favour of a man's character than, when asked by a friend for a trifling loan, at the risk of being thought mean or of confessing his poverty, he refuses, although he has money by him, because he has put it away to pay a just debt. Gentlemen, I leave my case in your hands, and I do so with confidence, as I know you will exercise that intelligence and discrimination which have at all times distinguished British jurymen, and prove to me and my client that you are not only able but determined to separate truth from error."

'I need not read to you the summing-up of the judge; he merely directed the jury to go by the evidence, and explained to them a few points of law. But I am sorry to tell you that Serjeant Oilem's flattery failed with the jury; for in half an hour they returned with a verdict of "Guilty;" and George Hamilton was sentenced to five years' penal servitude, and was sent to Millbank prison to commence his punishment for a crime he never committed.

'The very day after his sentence was the twenty-fifth anniversary of Clara Brierly's birthday; and on the following morning this advertisement appeared in the *Times*:

'FIVE HUNDRED POUNDS REWARD.—Whereas on the 2d day of September 18—, an Elderly Man

of respectable appearance, who carried about with him a Blue Pocket-book, presented a Forged Note, and got in exchange good money at the Offices of Messrs Dibden, Knollys, & Dibden, Bell-yard, Doctors' Commons. The above REWARD will be paid to any one proving that such a transaction took place.

(Signed) SMITH & OLIVER, Solicitors.
BRICK COURT, MIDDLE TEMPLE.

'Clara was now free. She had waited anxiously for the result of the trial; but never for one moment doubted the entire moral innocence of her lover. On the morning of her twenty-fifth birthday, she had the newspapers sent up to her room, where she remained. She read the whole trial over without missing a word. When she came to the verdict "Guilty," her agitation overmastered her directness of purpose. At length, however, she calmly rose from her seat, with the words, "Innocent as I am. I am now more certain than ever."

'Without a tear on her pale face, she dressed herself to go out; then packed up the things that she wished to take with her, and left the house without a word to any one, except the servant, to whom she gave the remaining property of her own that was in her room, desiring her to tell her master that she had gone away, and should not return. Then calling a cab, she drove to Smith and Oliver's, the solicitors, who had been recommended to her by George. It is wonderful how they appear to know everything in those musty rooms in the Temple. She had not got through more than half-a-dozen sentences in explanation of her business, before they told her they knew the entire circumstances, and accepted her proposal to place her affairs in their hands; offering to supply her at once with any money she needed. The first thing she did was to direct a large reward to be advertised—as I have just read to you; and receiving what funds she required, intimated her intention to take lodgings in the City till the mystery should be cleared up. To this proposal, however, Mr Oliver demurred, suggesting that, instead of going into lodgings, she might take up her residence for the time in his house. He had no family, and his wife would be delighted to have her for a companion. To this suggestion Miss Brierly cordially assented. In order to commence those inquiries to which she was prepared to devote her life, if necessary, she, acting through her solicitors, obtained from her unfortunate lover a written description, as closely as he could remember, of the stranger. This she had printed and distributed, with the offer of a large reward, not only through London, but to every police station in England.

'A month passed, and not the slightest clue had yet been found; and another month, and another. All this time, she herself never lost sight of her object. She scrutinised every elderly gentleman that she met, and more than once she even followed through the streets people whom she thought suspicious, with the hope of their exhibiting a blue pocket-book, her chief mark.

'All this time, I had never heard of the advertisement with the large reward, nor suspected the mischief I had so unwittingly caused. We had been wandering about the continent; my wife's health had recovered wonderfully, and my

daughters wanted to go to Egypt. Of course I had to consent. Here we stayed several weeks, "doing" the Pyramids and everything else that it behoves travellers to do. However, with advancing spring, we began to wish for the cool breezes of Old England, so we turned our steps homeward, taking Paris *en route*. We arrived in Paris early in May, where, in spite of all persuasions, I determined to remain only a few days. We had therefore to make the best of our time.

'Repairing one morning to the reading-room, to see the English papers, being naturally anxious to learn what was going on at home, I found a file of the *Times* for the past month or two stitched together; and while casually perusing the Agony columns, my eye fell upon the advertisement I have read to you, as also to an appended description of myself. The transaction flashed upon me. I at once looked up the entries in my pocket-book, and found that the date when I got change at Dibden's corresponded with that given in the advertisement. You see, here are the entries: "*August 29*—Bank of England note 37299, L.10, from Roberts & Co." And—"September 2"—Bank of England note 65982, L.5, from Dibden, Knollys, and Dibden."

'I need scarcely tell you that I lost no time in leaving Paris for London; and when I arrived there I at once found my way to the office of Messrs Smith & Oliver. At the very moment I was about to enter their chambers, a young lady was in the act of leaving them. Her eyes no sooner met mine, than she seemed fixed to the spot. Thinking she might possibly have recognised in me an old acquaintance, I raised my hat, and was about to speak, when she eagerly inquired: "Did you see the advertisement?"

'I replied that I had seen an advertisement in the *Times* which I believed referred to myself, and that I was there that morning in consequence.

'The strained and anxious expression on her face seemed to become intensified, as she asked: "And was it you who gave him the note?"

'You see, I was up till now quite ignorant of what had taken place with regard to that ten-pound note, or even why any information was wished from me regarding it; I did not therefore quite understand the question, and looked I dare say somewhat taken aback. Ere I could reply, however, she spoke.

"Oh," she said, "I beg your pardon; but something dreadful has happened in connection with that note, and I spoke as if you must have known all about it. Will you kindly come in and see Mr Oliver?"

'I went in, and a very few minutes' conversation with the solicitor was sufficient to acquaint me of the very distressing occurrence to which the young lady had referred. I observed that she was still much agitated, and seemed to await my reply with something like impatience; and, as I drew forth the blue pocket-book, her eyes were riveted upon it with an eagerness painful to behold. I then exhibited the entries which I have already shewn you, and placed the book in the hands of Mr Oliver. Both he and the young lady examined and compared them without speaking a word. He took from a bunch of papers on the table a folded sheet, which, when he had opened out, I saw was

a criminal indictment. Glancing it over for a minute, he read out slowly and distinctly the number "3-7-2-9-9," comparing it figure by figure with the first entry in the pocket-book.

"Thank God," said the young lady; "that is it." During this time her face had changed from being pallid to a hue like that of death; and now, as the tears started from her eyes, she sank, half-fainting, into a chair. I was not surprised at the nature of her excitement when I came to know all, and that when I met her she was leaving the chambers in a state of despondency almost bordering on despair—day after day having passed, and no reply being received to her repeated advertisements and appeals.

"Mr Oliver spoke kindly and encouragingly to her, and in a little she had so far recovered as to allow him to prosecute the inquiries which naturally arose out of the information I had given him.

"I have already mentioned to you," he said, "that the note which the young gentleman admitted having received from you and placed in the cash-box, was a forged note; I trust the fact that you had that note in your possession can be satisfactorily explained, as we should be very sorry indeed if the information that promises to give such relief to us should in any way reflect upon you."

"I said that I hoped not. I had received the note, as entered in the memorandum, from a firm called Roberts & Co.; but I knew nothing further of them, the firm having been a strange one to me, and the transaction—the first and last I had had with them—a cash one.

"He asked if I remembered the address of the firm. I told him as nearly as I could; whereupon, again referring to his papers, he shewed me a cutting from a newspaper containing the detection and conviction of a gang of bank-note forgers, who had transacted business under various cognomens, one of these being "Roberts & Co.;" and he stated, what was afterwards verified, that the persons from whom I had received the note which had caused all this trouble to innocent people, were in all probability connected with the forgers referred to.

"It was thus that I first made the acquaintance of my heroine, Miss Briery; and may say that I never felt prouder of my old blue pocket-book, with its mass of apparently trifling entries, than when the Secretary of State, after hearing the statement we made to him, accepted my pocket-book memoranda as evidence, and in due course issued an order for George Hamilton's liberation. The very day the order was received, I went to Millbank to take him back; and in two hours he was sitting at dinner in the place you now occupy, with his handsome bride-elect at his side. The only atonement that I could make him for the suffering I had innocently caused him, was to take the place of a father, and give her away on her wedding-day.

"You will now, I hope, perceive the value I place upon such memoranda as my old pocket-book contains. To make such entries is only the work of a minute; and when made, there is no knowing what useful purpose they may serve. There can be no reasonable doubt that, if I had not had the transactions above referred to, trifling as at first sight they may have appeared, duly

entered in my memoranda, my statements to the Secretary of State would have been of no avail, as they would have looked like the trumped-up fictions of a later hour, concocted for the purpose of defeating justice. As it was, the entries stood in my book under their proper date, and were sufficient of themselves, apart from my parole evidence, to prove that the person to whom I gave the forged ten-pound note on the second of September was not the utterer of that forged note, whoever may have been the guilty party; consequently, I was thus able to free an innocent person, not only from prison, and from a long and degrading course of penal servitude, but from the life-long stigma which the imputation of such a crime would have left on his character.—And now, my dear boy, I am going to give you a present of a nice new memorandum-book, and I hope you'll make good use of it."

THE FIRST ENGLISH PAY-HOSPITAL.

THERE can be no doubt that Hospitals have been the means of relieving countless thousands of sufferers. These institutions are, as every reader knows, upheld for the most part by voluntary contributions, and are open to all whose ailments entitle them to admission. At first sight, the system is a beneficent one—and where it operates for the benefit of the poor and needy, doubtless so; but upon looking beyond the surface, we find that the gratis professional aid so freely accorded is enormously taken advantage of by those who can well afford to pay. Thus, the objects for which these charitable institutions were originally started being in a great measure frustrated, it is with satisfaction that we hear of the establishment of a Pay-hospital within whose walls a patient may have first-class professional advice and nursing, at an outlay commensurate with his or her means. This institution, which was opened to the public by the Bishop of Winchester on the 28th of June 1880, is situated in Fitzroy Square, within a stone's-throw of that important 'lung' of London, Regent's Park. Fitzroy House, as the Hospital is called, has the advantage of the open space in front, and of the view from the windows of the fine old trees in the inclosure. The Association has purchased the freehold tenement, and has succeeded in an admirable manner in altering and adapting the interior arrangements to suit the purposes of an Hospital, while retaining the brightness of aspect and decorative effect of a private house. On first entering, the eye is caught by the contrast, in point of lighting, presented by the vestibule, as compared with that of the ordinary London house. Throughout the entire building, including the basement, the architect has been equally successful in rendering almost every corner light and airy, though with none of the oppressive glare so often observed in public buildings, and so especially trying to invalids.

Especial care has evidently been spent upon the selection of the wall-papers, all of which are artistic in design, pleasant and unaggressive in

colouring, and totally free from any such decision of pattern as might prove distressingly monotonous to a patient. Those to whom the floral or other design upon a wall-paper, occurring at regular intervals, has become a daily torture in times of illness, will be able to estimate the advantage of the inoffensive patterns chosen. These papers, taken in conjunction with the subdued but harmonious tinting of the carpets and other furniture, the prevalent air of luxury imparted by flowers, carved oak, and stained glass, completely banish from the mind any association of ideas with the bare walls and general nakedness of effect of the ordinary hospital. At the same time, it has not been forgotten that bare boards and washable walls are a necessity in an establishment of the kind. The papers have all been varnished, so that every inch throughout the house can be washed; while the boards, stained to a pleasant tint of dark oak, can be noiselessly washed and wiped by the nurse in attendance. The only floor-coverings are Persian rugs, thick and soft in texture, agreeable in design and colouring, and sufficiently numerous through the rooms to answer all the purposes of carpets, while obviating their inconveniences.

Turning to the important subject of ventilation, we find that it is most amply and even ingeniously provided for. Every room is supplied with a contrivance for emitting foul air and admitting fresh, so managed that the two operations can be carried on without creating any draught. The windows of the rooms on the lofty first-floor have been fitted with a noiselessly worked appliance which opens the upper part of the windows after the manner of a ventilator.

The drainage is perhaps even more important a consideration than that of ventilation; and here we come upon one of the most admirable points of the Hospital, one that would recommend it as a residence to the healthy, in a city where the drainage arrangements are so perilously neglected as is unfortunately the case in London. All communication with the sewer is completely cut off; and in addition to this most necessary but scarcely usual precaution, an ingenious, inexpensive, and most effectual contrivance provides for the daily flushing of every drain in the house; and not only for the process itself, but for the proof that it has been effectually performed. By raising the trap of a hole in the front-yard, any one can satisfy himself as to the completion of the process, by seeing whether the water rushing through it is perfectly clear and pure.

The bedrooms are comfortably furnished, and thoroughly home-like in aspect. In fact, it seems to have been the great aim of the Management to render the Hospital in every respect like a private house with its comforts and privacy, *plus* the experienced nursing and constant professional care that it is difficult, if not impossible to secure at home. Each bed is fitted with a chain-spring mattress; hot and cold water laid on, and speaking-tubes communicating with the kitchen and the Lady Superintendent's room. A carrying-chair, simple in construction, light in weight, but remarkably strong, forms another feature of the very

complete arrangements. The poles which form the handles can be raised or lowered at any angle, so that the convenience of the person carried can be consulted with the minimum of trouble and fatigue to the bearers.

Some of the rooms are arranged for one patient only. These are of course the most expensive. In other rooms, there are two beds; and in what was formerly the drawing-room—a very large room—there are four, each curtained off from the other in such a manner as to be effectually screened without darkening any part of the room.

In the case of a mother wishing to accompany a son or daughter during a stay in the Home Hospital, the Management undertakes to arrange for her to do so; and as especial care has been taken to secure the services of an excellent cook, a sojourn in this bright, airy, artistically furnished house would offer many alleviations from the onerous task of nursing; not the least among which would be the assurance that the sick relative was surrounded by everything that could possibly conduce to a speedy restoration to health; and the reflection that those remaining at home are free from the constant harassing sense that tortures the amateur nurse—namely, that perhaps from want of experience, she is failing to do the best that could be done for the invalid. There is very little doubt that the Paying Hospitals, of which this is the first, will be regarded as an invaluable boon by all right-thinking persons.

IMPROMPTU INGENUITY.

THERE are times and occasions in the lives of most individuals when a sudden call is made for the exercise of readiness or impromptu ingenuity, the importance of which may be very great, and which enables the possessor to make the best of such means and appliances as may be at hand, no matter how unpromising or apparently inapplicable.

Some years ago an incident occurred under the writer's observation which confirms in a remarkable manner the value of this simple expedient—the use of oil at sea. A Spanish steamer while crossing the Bay of Biscay in a severe storm gave such indications, by an unusual noise at the stern, as led the English engineer to suspect that there was something wrong with the screw-propeller or its shaft outside of the ship—that is, in the open space between the stern and rudder-posts where the screw revolves. There was no dry dock in any of the ports on the coast where the ship could go to be examined; and on arrival at Vigo, it appeared as if there was no alternative but to remove the cargo from the stern, and by placing it forward, thus lift the screw-propeller and shaft to the surface of the water. The alternative, simple as it was, meant a serious delay and great expense. Before commencing to remove the cargo, another consultation was held. It was then decided to put the stern of the ship over a bed of light-coloured sand; and as the water was very clear, there might be a possibility of ascertaining the extent or cause of the mishap. For two days after the vessel was so placed, the wind caused a ripple on the water, which effectually prevented anything being seen. It was then suggested by some one on board to try the use of oil on the surface of the water round the stern of the ship. The effect was most satisfactory. The water was

becalmed as if by magic, and it was then seen that the wedge or key which keeps the propeller in its place on the shaft had come partly out, and thus left the screw loose on the shaft, which caused the noise. By continuing the use of oil for a few hours, the wedge was ultimately driven into its place and secured. In this instance, many days of detention and the use of costly appliances and labour were thus saved.

Instances of a more complex character frequently occur where a knowledge of natural laws or forces may be brought into operation to assist in surmounting difficulties. Thus, a few years ago, an iron bridge of considerable length, the weight being about two hundred tons, was constructed in this country, and erected in a remote part of Germany. By some mishap, the bridge, when finished, was found to be some distance 'out' to one side, an error which the proprietors insisted should be rectified. To take down and re-erect the bridge would be simply ruin to the contractor. But Necessity is the mother of Invention, and so it proved in this case. It was summer-time, and the contractor proceeded to find the amount of expansion which was caused by the heat of the sun over the whole length of the bridge. He next ascertained what contraction took place in the night by cooling. Armed with these data, he thought it might be possible to bring the bridge to its proper position in a few days. The bridge, of course, in its ordinary condition expanded from the centre, pushing its two ends outward, or farther apart, and again contracting towards the centre. Taking advantage of these conditions, one end was made fast in the morning, and the bridge was forced to expand from that immovable point, instead of from the middle, as formerly. When the iron composing the bridge had expanded to its full extent in the direction intended, that end was released, and the opposite end made fast. The bridge then contracted towards its true position. Thus, whatever was gained by the day's expansion, was secured by the subsequent contraction when the metal cooled at night; and the process being renewed day by day, the work was successfully accomplished.

A knowledge of the laws and extent of the expansion and contraction of metals, opens up a wide field of usefulness in this connection, and is capable of very extensive application. We see large guns built up in this manner, which could not possibly be made in any other way by the appliances that we possess at present. The tires of wheels, as every one knows, are also fixed on their places by being first heated and then left to shrink. An ingenious application of this quality in metals was made use of in France, and has frequently been taken advantage of since. The walls of a large building in Paris were observed to be giving way by bulging outwards; and the problem was to bring them back to their vertical position. For this purpose, a number of bars of iron having screws and nuts on each end were let through the opposite walls, and across the intervening space between them. The nuts and screwed portion of the bars were outside. The bars were now heated by a number of lamps suspended below them until they had expanded as much as possible, and the nuts screwed up against the outsides of the two opposite walls. The lamps were next removed; when the heated bars, in

cooling, gradually contracted in their length, bringing the walls very gently, but with irresistible force, into their normal position.

An old story is told in connection with the expansion and contraction of materials, which may deserve a place here as an illustration in point. It has been stated that when the Egyptian Obelisk was being erected in the square in front of St Peter's at Rome in the year 1586, during the reign of Pope Sixtus V., it was first demonstrated that ropes under severe tension contracted by the application of moisture. The occasion was made one of high festival. The architect and workmen, and the Obelisk also, received the benediction of the Pope, and high-mass was celebrated in St Peter's. But every attempt to move the pillar was unsuccessful. All the horses that could be found, with all the appliances for lifting heavy weights of that time, were put into requisition. And it was not until more than fifty unsuccessful efforts had been made, that the huge mass rose from the ground. Meanwhile, the great weight had stretched the ropes so much, that when the pulley-blocks had reached their limit in lifting, the bottom of the Obelisk had not reached the top of the seat prepared for it. At that moment a man in the crowd shouted: 'Wet the ropes!' The experiment was tried; the ropes shrunk, and the Obelisk gradually and slowly rose to the required height, and was successfully placed on its seat.

Still further in relation to this subject, we are indebted to Captain Saxby of the Royal Naval College of Woolwich, for a remarkably simple and ingenious application of a very common instrument to the solving of a difficult but important problem. It is well known that in working iron, such as welding two pieces together, and even in its manufacture, hollow places or flaws occur, with merely an outside skin over the defective parts, which any test but a destructive one would fail to discover. Nor would it be difficult to point out numerous examples of disaster thus occurring. To test the homogeneity of the metal, Captain Saxby takes a bar of iron and places it on the equatorial line. He next passes a compass with a very sensitive needle along in front of the bar, the needle of course pointing at a right angle to it. If the bar is perfectly solid through its whole length, the needle will remain steady. If, however, there should be a flaw or hollow place in the bar, the needle will be deflected as it passes from the solid to the hollow place, *backwards* towards the solid iron; passing on over the hollow place, the needle will come within the range of the solid iron at the other end of the flaw, and will again be deflected *forward*. If the bar be cut through anywhere between these two points of deflection, a flaw will invariably be found. Many thousands of pieces of iron—some prepared for the purpose of testing this method of trial, others in the ordinary course of business—have been operated upon with the same unvarying result. Captain Saxby has called to his assistance Nature, who never makes mistakes in her operations.

A striking instance of ingenuity in taking advantage of the resources of Nature in an emergency, is found in Sir Samuel Baker's account of his Travels in Abyssinia. His stock of soap had become exhausted; and as he possessed abundance

of various kinds of fat, including that of elephants, hippopotami, lions, and rhinoceros, he determined to convert a quantity of this grease into soap. For this purpose, he required both potash and lime; and how were these to be obtained? The Negleek-tree, he found, was exceptionally rich in potash; he therefore burned a large quantity, and made a strong lye with the ashes, which he concentrated by boiling. There was no limestone; but the river produced a plentiful supply of oyster-shells, which, if burned, produce excellent lime. What was next wanted was a kiln in which to burn the shells, and this he constructed out of one of those great ant-hills, which rise to ten feet high, common to those valleys, and which possess a very hard external crust. Two natives hollowed out one of those hills; a proper draught-hole was made below from the outside; it was loaded with wood, and filled with some six bushels of oyster-shells, which were again covered with fuel; and after burning twenty-four hours, a supply of excellent lime was obtained. Then commenced his soap-boiling, which was effected in a large copper pot of Egyptian manufacture. The ingredients of potash lime and fat were then carefully mixed; and after boiling ten hours, and having been constantly stirred, he obtained excellent soap, of which he had in all forty pounds-weight.

It may be said to have been due to a sudden stroke of ingenuity that Napoleon Bonaparte first drew upon him the eyes of his superiors. He was engaged with his brigade, as an engineer of artillery, in the reduction of Toulon, which in the end of 1793 alone of all the revolted cities still held out against the victorious Republic. A plan was supplied by the celebrated Carnot to the general, Dugommier, for the bombardment of the town; and in a happy moment the latter officer confided the charge of the artillery to the young Corsican. Napoleon, after studying Carnot's plan of attack, recommended a scheme of operation so much more practicable and simple, that it was at once adopted. The result was that, in eighteen days, Toulon was reduced by the victorious Republicans, and the foundation laid of Napoleon's military reputation.

In trade, as in war, a similar readiness to seize upon all available circumstances that may tend to accomplish the object we have in view, is useful. We lately heard a story in point. A commercial gentleman in Jamaica wrote home to a merchant in the west of Scotland, telling him what a fine market there was at the time in that island for British goods. The merchant in question was noted at once for his ignorance and for the success of his export ventures; and a wag among his acquaintances had offered a wager that on this occasion he would put him on a losing tack. He therefore advised the merchant as to the nature of his proposed consignment; and, of all things in the world for a place like Jamaica, what should that consignment consist of but *warming-pans*? When they arrived, the consignee was at first in a state of the utmost consternation, and did not know what to make of them. But presently his ingenuity came to his aid. He saw that the warming-pans, if useless as such, were not quite without possibilities of adaptation to other uses; accordingly he had the lids knocked off them, after which both pans and lids were offered to the sugar-manufacturers as skimmers to skim their sugar-vats. They were found to answer the pur-

pose admirably; and there being a great crop of sugar that year, the whole consignment of metamorphosed warming-pans was disposed of with a handsome profit. It is scarcely necessary to add that the wag lost his bet.

Another story occurs to us of the advantage of being able to apply one's knowledge in an emergency. An eminent firm of woollen manufacturers received a commission to make a particular fabric out of a special kind of wool which it was desired at the time to introduce into the home markets. As the fabric thus made was to be sent to one of our International Exhibitions, the manufacturers were required to give a guarantee that they would use the particular wool sent them, and no other, in making up the goods. In the course of the dyeing processes, one colour upon which the whole beauty of the pattern depended, came out so impure and defective that the portion of wool so dyed was considered hopelessly spoiled. It was an awkward circumstance for the manufacturers; as, to have made a request for additional wool would have been a confession of bad workmanship at the outset. In this emergency, a workman in the dyehouse, who acted as a vatman, a position little above that of an ordinary labourer, but who, with good natural parts and a taste for his work had privately acquired considerable knowledge of the chemistry of dyeing, came to their aid. He expressed the opinion to a fellow-workman that the colour might yet be restored to comparative purity; and this opinion being carried to one of the principals, permission was given to the vatman to make the experiment. The wool, it was considered, was lost at anyrate—an experiment with it, however hopeless it looked, could not make things worse. The vatman for the time being got the full use of his superior's dyeing stuffs and apparatus, and with such success, that the colour was brought out on the wool in all its brightness and purity. This was the making of the vatman, who in a short time afterwards attained to the position of chief of the dyeing department, and ultimately went into business for himself, and prospered. His readiness of resource had not only led to his own advancement, but had saved the manufacturing reputation of the firm by which he was employed.

THE MONTH.

SCIENCE AND ARTS.

FUTURE historians will describe the last quarter of the present century as an era remarkable for exhibitions and public gatherings for scientific, literary, political, artistic, and sanitary purposes. Miles of streets and shops no longer suffice; but products in well-ordered series must be brought together under one wide-spreading roof, where all the world may see. A good case in point was the Leather Trades' Exhibition at Islington, with its five series of commodities—(1) specimens of every kind of leather; (2) articles made of leather; (3) colours, dyes, varnishes, and pastes used in the preparation and finishing of leather; (4) the machinery and appliances employed in the manufacture of leather; and (5) a large variety of objects which require more or less of leather in their construction. Ample scope here for display of ingenuity, from leather belts of unusual strength

for machinery, to the compressed leather, formed of waste cuttings, used for inner soles, and to the cunning machines which now do all the sewing, pegging, and screwing, and other hand-work needed in the manufacture of boots and shoes. The industry thus represented, figures for more millions sterling in our annual accounts than would commonly be believed. A similar Exhibition is to be held during six months in 1881 at Frankfort.

The Sanitary Institute of Great Britain held their meeting at Exeter, and discussed special questions under the stimulus of knowledge, such as 'Sanitary Science and Preventive Medicine,' 'Engineering and Sanitary Construction,' 'Meteorology and Geology,' and illustrated their propositions by models, apparatus, and contrivances intended to promote health and cleanliness.

Among the questions brought forward at the Social Science Congress held at Edinburgh this month (October), were: 'What are the means which should be adopted for the prevention of the pollution of streams, without undue interference with industrial operations, and for the preservation of pure sources of water supply?'—'The best mode of amending the present laws with reference to existing buildings, and of improving their sanitary condition, so as to render them more healthy, having due regard to economical considerations?' and 'How far would the revival of the old system of master and pupils be of advantage, and tend to promote the growth of historical art, and the fitting use of painting and sculpture in our public buildings?' There is something more than art and science involved in the answer to these questions. The Trades' Union Congress at Dublin felt it when they agreed that a trade could best be learned by regular apprenticeship, and when Dr Ingram shewed them that the capitalist regarded as a 'social functionary' rises to a position of dignity, and that 'labour, in the widest sense of the word, is the continuous and combined effort of our race for the improvement of its condition and its nature.'

We are familiar enough with shows of cats, dogs, kine, horses, and potatoes even; but a goat-show is a novelty, and a successful novelty, as was demonstrated by the prizes awarded for the best specimens of British and foreign goats exhibited at the Alexandra Palace. The object is to improve and encourage the breeding of goats throughout the country, for goats will live on land where a cow would starve, and give a good supply of milk, which is not only very nutritious, but very profitable. One of the specimens exhibited was brought from the Cape, where a resident magistrate has a herd of five thousand. As a supplement to the show, a public dinner was held, in which all the dishes were of kid; and it was stated that kid can be sold at sixpence a pound.

An East Anglian Fisheries Exhibition is to be held at Norwich next Easter, when pisciculture, or fish-breeding, will be represented by hatching apparatus, aquaria, and living fish, and stuffed specimens; models of vessels, and the different appliances for catching fish will be shewn; also examples of the social condition of fishermen, models of life-boats and other life-saving appliances; illustrations of the history of fishing; preparations of fish in various forms for food, together with specimens of aquatic birds, of marine animals,

shells, and shell-fish, and of the prolific vegetation of the sea. Evidently there will be in this Exhibition a wide range of entertainment as well as instruction.

The opening of the Mason Science College at Birmingham must not pass without a word of notice on our part. This admirable institution—built, endowed, and furnished at the sole cost of Sir Josiah Mason—offers training to all students in mathematics, physics, chemistry, geology, mineralogy, and other natural sciences, 'without restriction as to sex, creed, or birthplace.' May we not hope that many a needy artificer will find in this college such resources for education as were sought for in vain by the munificent founder sixty years ago, when he was a struggling journeyman.

Besides the Exhibition above mentioned, there will be next year at Frankfort a 'General German Patent and Registered Articles Exhibition,' the main object being to 'bring to public notice the greatest novelties in the domain of inventions and designs;' and further, an 'International Balneological Exhibition.' This last, in the words of the prospectus, is to include 'mineral waters, with a geological description of their district,' 'products obtained from the water, salts and mother-lies,' 'bathing-tubs and sand-bathes,' 'bathing machine, bathing chairs, and all kinds of invalid furniture,' 'apparatus for medical electrification and for orthopraxy,' 'meteorological apparatus,' and appliances for 'outdoor games, such as lawn-tennis, croquet, cricket, bathing, and playing costumes.' Inventors too often are inveterate grumblers. Have they not a prospect of comfort at Frankfort?

The meeting of the International Congress for the education of the deaf at Milan may be regarded as important, for they resolved to discard signs in teaching, and to adopt the 'pure oral method.' The president, Abbé Tarra, said in his address, 'signs must be altogether abjured, though a few simple gestures may be allowed when the little child is first introduced to school-life. In the schoolroom begins the redemption of the deaf-mute. He is waiting to be made into a man. Let him be taught to move his lips in speech, not his hands in signs. Of all movements for the expression of ideas, those of the lips are most perfect. Speech is addressed to the intellect, while gestures speak coarsely to the senses.' These views were supported by speakers from different parts of Europe; and from experiments made in England and other countries, of which mention was made in this *Journal* for June 21, 1879, there is no doubt that persons utterly deaf can be taught to speak by watching the movements of their teachers' lips.

The Board of Education at Dayton, Ohio, appointed a committee to visit all the schools of that town, and examine into the conditions of school-life that tend to impair the sight of pupils. The report of that committee, drawn up by a medical man, has been published under the title *The Influence of School-Life upon the Eyesight, with Special Reference to the Public Schools of Dayton*. In making the examination, the committee kept in view the causes or occasions which predispose to short-sightedness—namely, hereditary weakness, impure air, improper food, defective light, bad type, pale ink, prolonged use of the eyes without intermission, faulty position of the body, and faulty construction of school furniture. They

found, as other investigators have done, that, as a rule, the cases of short-sight are most numerous in the higher classes, and they discuss and point out 'the effects of prolonged tension, of accommodation, and of a faulty position in studying.' The school buildings for the most part are defective in ventilation and illumination; the proportion of window surface to floor surface being considerably below the standard generally regarded as sufficient. The conclusion is, that the Board should not only remedy these defects, but 'recognise the importance of making some provision for instructing the teachers in the fundamental principles of school hygiene.' Managers of schools in other places may perhaps take a hint from this report.

From an official school inspection made during the present year, we learn that myopia—short-sight—is largely on the increase in the schools of Germany. Hereupon the question arises: Can a remedy be found, or is the defect inevitable?

The photophone is a new invention by Mr Graham Bell, and has attracted the attention of physicists. With this remarkable instrument, sound is conveyed not by a string or wire, but by an intangible conductor—a beam of light. A plane, bright, flexible mirror is fitted in a stand; the light thrown upon it is reflected as a beam, and at a considerable distance strikes a parabolic reflector, which has in its focus a cell of selenium connected with a galvanic battery and a telephone. If, now, a voice speaks behind the flexible mirror, vibrations are produced and are communicated to the beam of light, and become audible in the telephone attached to the distant selenium cell. It has long been known that certain metals and metalloids give out sounds under the influence of light or heat; among these substances selenium, from its sensitiveness, holds a conspicuous place, and now it has been applied to practical uses in a way which in all probability will be found capable of further development. For the benefit of the uninitiated, we mention that selenium is a mineral occupying a place between sulphur and tellurium.

Something has been said about the possibility of taking photographs at a distance by means of the telegraph, to which operation the name electric telescoping might be given. Suppose a picture of a landscape taken in a camera; what is required is that the electric current should take up and transmit the features of that landscape, as it does modulations of sound. This once achieved, pictures might be obtained of places hundreds of miles distant.

Justice's Quieting Chamber is the name of an invention 'for the entire suppression of the objectionable noisy puffing from the exhaust-pipes either of gas or steam engines.' It contrasts favourably with existing arrangements, for it is compact, occupying but small space comparatively. The chamber is filled with small balls of porcelain, glass, or sorted pebbles, and in passing through these the noise of the discharge or explosion is completely suppressed, 'without creating any perceptible back-pressure on the engine.' Pleasure-parties on board launches or steam-boats will find their pleasure enhanced by this quieting chamber, further information concerning which may be had on application to Mr P. S. Justice, 14 Southampton Buildings, London.

In a communication concerning spiders published in the *Transactions of the Hertfordshire Natural History Society*, we are informed that spiders' thread varies in thickness from a thousandth to the four-thousandth of an inch, and yet will carry a weight of from fifty-six to sixty grains. At the beginning of last century the cocoon silk of spiders was woven into gloves by a Frenchman. In 1710, the naturalist Réaumur, at the instance of the Académie des Sciences at Paris, investigated the subject; but his report thereon was not favourable. Spider gloves were afterwards woven in Italy; and about the beginning of the present century, Troughton, the eminent optician, used spider silk instead of fine silver wire in his philosophical instruments. From experiments made a few years since, it was found that spider silk could be obtained in quantity sufficient for manufacturing purposes. Dr Wilder 'reeled one hundred and fifty yards from a *Nephila plumipes* on twenty occasions within a month, and he calculates that it would require a similar produce, from four hundred and fifty of the same species—that is, one million three hundred and fifty thousand yards, to make a yard of such silk as would be used in a dress.'

Very remarkable is the growth of the trade in jute. In 1829 the export of jute from Calcutta was twenty tons only, worth about twenty pounds. Now the quantity exported annually is three hundred and fifty thousand tons—nearly two million bales—valued at about six million pounds sterling. This large quantity does not include the enormous supplies retained for us in India.

In the *Journal of the Quekett Microscopical Club*, further observations are published on *Micro filaria*, the minute worm which infests the blood of diseased persons in China, of which we gave an account a few months ago. And particulars are given by Dr Perroncito of Turin of the endemic disease developed among the labourers in the St Gothard Tunnel. After some weeks of toil in that confined space, those Italian navvies become pale, lose their strength, and are compelled to abandon the work. In the newspapers the malady was represented as 'tunnel Trichinosis'; but Dr Perroncito having had a number of the men under his care, describes it as a parasitical disease produced by the presence of the *Dochmius duodenalis*, the intestinal *Anguillula*, and the *A. stercoralis*. Hundreds of the labourers were infested, in some instances, by all three of the noxious parasites. Among the remedies tried was hot water, at as high a temperature as it could possibly be swallowed, with a view to kill and expel the intruders.

Aids to the Study and Forecast of the Weather, is the title of a shilling book just published by authority of the Meteorological Council. The chief object of this publication, as we are told, 'is to facilitate the study of weather to persons who are in a position to avail themselves of the usual meteorological instruments, and who wish to bring their own local observations into connection with the more general information supplied by the daily weather reports of the Meteorological Office, and with the accounts of weather published in the daily press.' The facilitation consists of observations on wind and cloud, weather signs, relations of pressure and wind, course of cyclonic systems, characteristic

types of weather, specimens of forecasts, and a dozen explanatory charts—all well worth a shilling.

From observations made during nearly twenty years in a forest in the Jura, it appears to be proved that—(1) when light strikes the ground without having been sifted by foliage, it stimulates the production of carbonic acid in the soil; that (2) the growth of wood is diminished when the underbrush is so thick and tall as to impede the passage of sunlight to the soil, and its reflex action on the branches of the trees; and (3) that mould in too great a thickness becomes inert, and thus remains many years, as is the case with farm-yard manure when too deeply buried.

Professor Aughey, of the University of Nebraska, has published sketches of the physical geography and geology of that state, in which a curious fact is mentioned—namely, that within the past fifteen years there has been an increase in the number of springs, and in the volume of the rivers throughout the state. This is due to an increased rainfall, and the increased rainfall is a consequence of cultivation. The hard soil of the original prairie threw off the water, which ran away in the cañons; but when it was ploughed and tilled it became largely absorptive, and now sucks in and retains the rain like a huge sponge. The state is four hundred and thirteen miles in length. When first settled, its annual rainfall was twenty inches, of which probably not more than five inches were absorbed. Now the annual fall is thirty-two inches, and the absorption is twenty-four inches. Much of the soil is alluvium, with a thickness in places of two hundred feet.

At about sixty miles from San Francisco, on the top of Mount Hamilton, the Californians have started the Lick Observatory, for which one of their citizens, Mr James Lick, gave a liberal endowment. The summit of the mountain, four thousand two hundred and fifty feet above the sea, commands a clear view of a hundred miles in all directions, and is remarkably free from fog and cloud. Hence the desire of American astronomers for a good working observatory at a high elevation will now be gratified. Some of the instruments are already in place, and others will be provided of the best possible quality. Certain physical and meteorological, as well as purely astronomical observations, will be made; and we may hope that the Lick Observatory will take a high place among institutions devoted to the elucidation and study of natural phenomena.

Some months ago Professor H. Draper of New York tested the atmosphere of the Rocky Mountain country at heights from four thousand five hundred to eleven thousand feet, with a view to ascertain whether astronomical observations could be made at those heights with more advantage than at his observatory on the bank of the Hudson, where, of one thousand five hundred photographs which he took of the moon, not more than two were really good pictures. The atmosphere is proverbially unsteady, and yet steadiness is essential to complete success in astronomical work. Hence telescopes have been carried up high mountains in the hope that the fatal unsteadiness would not prevail in the upper regions of the air; and to gain further experience on this point was the motive of Professor Draper's journey. At Salt Lake City (four thousand six hundred and fifty

feet) he was disappointed, for 'Saturn looked about the same as on an ordinary night at my observatory; Capella twinkled as badly, both to the naked eye and in the telescope, as I have ever seen it at the sea-level; and I had noticed that the sun set among just such a bank of clouds as we are accustomed to see in New York.' The explanation seems to be that the climate of Utah is not so dry as formerly. Professor Draper was told that the Mormons believe there has been an increase of rainfall since they first settled in the country, and he remarks: 'This seems to be borne out by the statement that, whereas formerly three gallons of Salt Lake water produced on evaporation one gallon of salt, it now takes four gallons to produce the same quantity.'

Afterwards the camp was pitched at a height of eight thousand nine hundred feet on the Rocky Mountain range; and on two nights the atmosphere was almost as steady and as transparent as could be desired, and the moon and stars looked surprisingly solid and brilliant; but there were two nights only, all the others were unfavourable. The climate generally is so severe and stormy that not more than about six weeks in the best part of the year could be counted on for observation. 'Apparently, therefore,' says Professor Draper, 'it would not be judicious to move a large telescope and physical observatory into these mountains with the hope of doing continuous work under the most favourable circumstances.'

A LINGERING LEAF.

Thou leaflet! flutter all forlorn
On bough so bleak and bare,
In what sweet sunlight wast thou born?
Amid what charmed air?
Ah! thou hast nought of beauty now!
No remnant of thy grace;
A solitary thing art thou
In this lone woodland place.

When all thy sister leaves rejoiced,
Thou wert as green, as gay;
And on this bough, all silver-voiced,
The linnet sang his lay:
Ah! who so light and fair as thou,
A graceful Summer gem!
And who so brown and withered now,
Alone upon thy stem!

Thou waitest but the icy breath
Of Winter keen and chill,
And thou shalt fall to deeper death,
Tossed at the cold winds' will;
Perchance to wander like a ghost,
A waif, through sky and earth,
Spurned by every breeze, and tossed
As if in mimic mirth!

And many a year the Spring shall wake
The earth with leaves and flowers,
And this bleak bough in bloom shall break
'Neath vernal suns and showers;
And leaves as gay and light as thou
Shall flutter in the sun,
And cluster on this hawthorn bough—
So perish, lonely one!

J. C. H.

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